

Unit 10
Day 3 - Part 2
Finding Domain and Range Algebraically

$$\textcircled{2} \quad g(x) = \frac{-3}{12+2x}$$

$$12+2x \neq 0$$

$$+2x \neq -12$$

$$x \neq -6$$

$$D: (-\infty, -6) \cup (-6, \infty)$$

$$x: (-\infty, -6) \cup (-6, \infty)$$

$$2x: (-\infty, -12) \cup (-12, \infty)$$

$$12+2x: (-\infty, 0) \cup (0, \infty)$$

$$\frac{-3}{12+2x}: (-\infty, 0) \cup (0, \infty)$$

$$\frac{-3}{12+2x}: (-\infty, 0) \cup (0, \infty)$$

$$R: (-\infty, 0) \cup (0, \infty)$$

Find the domain and range algebraically:

$$1) \quad f(x) = \frac{-5}{6+3x}$$

Find the domain and range algebraically:

$$2) \quad f(x) = \frac{4}{16-x^2}$$

Find the domain and range algebraically:

$$3) \quad f(x) = -|3x+2| - 1$$

Find the domain and range algebraically:

$$4) \quad f(x) = -\sqrt{x^2 - 4x - 5}$$

Find the domain and range algebraically:

5) $f(x) = \frac{2}{x^2 - 3x + 2}$

$x^2 - 3x + 2 \neq 0$
 $(x-2)(x-1) = 0$
 $x=2, x=1$
 $D: (-\infty, 1) \cup (1, 2) \cup (2, \infty)$
 $x: (-\infty, 1) \cup (1, 2) \cup (2, \infty)$
 $x - \frac{3}{2}: (-\infty, -\frac{1}{2}) \cup (-\frac{1}{2}, \frac{1}{2}) \cup (\frac{1}{2}, \infty)$
 $(x - \frac{3}{2})^2: [0, \frac{1}{4}) \cup (\frac{1}{4}, \infty)$
 $(x - \frac{3}{2})^2 - \frac{1}{4}: [-\frac{1}{4}, 0) \cup (0, \infty)$
 $\frac{1}{(x - \frac{3}{2})^2 - \frac{1}{4}}: (-\infty, -\frac{1}{4}] \cup (0, \infty)$ R:
 $\frac{2}{(x - \frac{3}{2})^2 - \frac{1}{4}}: (-\infty, -\frac{2}{3}] \cup [0, \infty)$

Find the domain and range algebraically:

6) $f(x) = \frac{2}{x^2 - 3x + 3}$

Homework:

Domain and Range worksheet